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File 155:MEDLINE(R) 1966-1995/Oct W3
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  Set  Items  Description
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  5281733  PY<1987
  S1       0  PARATHYROID HORMONE AND PY<1987
? s parathyroid()hormone and py<1987

    22633  PARATHYROID
   125113  HORMONE
     9557  PARATHYROID(W)HORMONE
  5281733  PY<1987
  S2    4777  PARATHYROID()HORMONE AND PY<1987
? s s2 and py=1986

     4777  S2
   320501  PY=1986
  S3     489  S2 AND PY=1986
? s s2 not s3

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      489  S3
  S4    4288  S2 NOT S3
? s s4 and human and (purified or purification)

     4288  S4
  5432237  HUMAN
   124318  PURIFIED
   348327  PURIFICATION
  S5      86  S4 AND HUMAN AND (PURIFIED OR PURIFICATION) ? t s5/3,ab/all


 5/3,AB/1
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05793320  86094320
  Calcium-regulating hormones modulate carbonic anhydrase II in the *human* erythrocyte.
  Arlot-Bonnemains Y; Fouchereau-Peron M; Moukhtar MS; Benson AA; Milhaud G  Proc Natl Acad Sci U S A (UNITED
STATES)  Dec *1985*,  82 (24) p8832-4, ISSN 0027-8424  Journal Code: PV3
  Languages: ENGLISH
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D'Amour P; Labelle F; Lazure C
J Immunoassay (UNITED STATES) *1984*, 5 (3-4) p183-204, ISSN 0197-1522 Journal Code: HS8
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Two synthetic carboxylterminal fragments, [tyr52]hPTH(52-84) and [tyr63]hPTH(63-84), and *purified* bPTH(1-84) were iodinated with 125Iodine to be compared as tracers in a late carboxylterminal radioimmunoassay. Tracer 125I-bPTH(41-84) was generated in vitro by incubating 125I-bPTH(1-84) with plasma membranes of rat kidney cortex. Region specificity was achieved by saturating the unwanted middle component of our multivalent antiserum with a molar excess of hPTH(44-68). A charcoal-dextran separation was worked out for each tracer. The titer of the antiserum giving approximately equal to 30% specific binding of each tracer was used in all experiments. Displacement of each tracer with increasing molar concentration of hPTH(1-84), hPTH(53-84), hPTH(41-84) and of hPTH (64-84) was studied. hPTH(41-84) was also generated by incubating hPTH(1-84) with rat cortex kidney membranes and was calibrated against a commercial preparation of bPTH(37-84). A progressive increase in the titer of the antiserum was seen as the molecular weight of the tracers decreased from a titer of 1/20,000 with 125I-bPTH(1-84) to a titer of 1/50,000 with the two synthetic tracers. Similarly the so-called damage seen during the charcoal-dextran separation in absence of antibody was reduced from 16.0 +/- 6.2% (mean +/- SD) with 125I-bPTH(1-84) to 1.3 +/- .2 with the two synthetic tracers. 50% displacement of the 125I-bPTH(1-84) tracer was achieved at 13.2 +/- .8 fmol/tube for hPTH(1-84) and at 6.3 +/- 1.0 fmol/tube for hPTH(41-84), reflecting the greater reactivity of fragments in that system. With the two synthetic tracers, a concentration of 5.0 +/- .4 fmol/tube of hPTH(1-84) or of 3.5 +/- 1.2 fmol/tube of hPTH(41-84) was necessary to achieve the same goal. With 125I-bPTH(41-84) results were between the two extremes. These results indicated that an increase in antiserum titer, a decrease in assay damage, an improvement in assay sensitivity and in comparative molar reactivity of the various circulating forms of hPTH can be achieved by using synthetic carboxylterminal fragments as tracers in region specific radioimmunoassays of hPTH.

5/3,AB/5
DIALOG(R)File 155:MEDLINE(R)

05536536 85152536
Radioimmunoassay for the middle region of *human* *parathyroid* *hormone* : comparison of two radioiodinated synthetic peptides.
Sharp ME; Marx SJ
Clin Chim Acta (NETHERLANDS) Jan 15 *1985*, 145 (1) p59-68, ISSN 0009-8981 Journal Code: DCC
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Two synthetic peptides were evaluated to develop radioligands for midregion-specific radioimmunoassay (RIA) of *human* *parathyroid* *hormone* (hPTH). Both contained the 44-68 sequence of hPTH (no tyrosine residues); one contained a tyrosine residue added to the amino-terminus, (Tyr43)hPTH(43-68). The *purified* radioligands showed similar chemical properties (stability to storage, efficient phase separation with dextran-coated charcoal, low adsorption to glassware). Both radioligands were tested using three anti-PTH sera of proven clinical utility. While each of these midregion-directed antisera showed unique specificity, they all reacted with high affinity with both radioligands and none of them discriminated significantly between the two synthetic midregion peptides. 125I-(Tyr43)hPTH(43-68) gave RIAs that were 15-50% more sensitive to hPTH(1-84) and the unlabelled synthetic midregion peptides than RIAs using 125I-hPTH(44-68) with all three antisera examined. 125I-(Tyr43)hPTH(43-68) was more susceptible than 125I-hPTH(44-68) to degradation from plasma or serum; this susceptibility was reduced by the peptidase inhibitor aprotinin (500 KIU/ml). Simultaneous RIAs of a series of patient plasmas using either of the two radioligands with antiserum NG5/5 produced indistinguishable discrimination between samples (r = 0.984). Analysis of data on the relation of serum calcium and hPTH midregion immunoreactivity showed a useful separation hyperparathyroidism, primary hypoparathyroidism and secondary hypoparathyroidism.

5/3,AB/6
DIALOG(R)File 155:MEDLINE(R)

05512901 85128901
Age, strain and species differences in circulating *parathyroid* *hormone*.
Kalu DN; Hardin RR
Horm Metab Res (GERMANY, WEST) Dec *1984*, 16 (12) p654-7, ISSN 0018-5043 Journal Code: GBD
Contract/Grant No.: AG00345; AG01188
Languages: ENGLISH
Document type: JOURNAL ARTICLE
A new, sensitive *parathyroid* *hormone* (PTH) radioimmunoassay that appears specific for the intact hormone, and its

validation for measuring rat PTH are described. The assay is based on antibody C2-7 from chicken immunized with bovine PTH; it has a detection limit of 6 pg of bPTH per assay tube and measures basal PTH in most rats; it is responsive to provoked changes in endogenous PTH concentration, and the intra-assay and inter-assay coefficients of variation are 6.0% and 7.2%, respectively. Multiple dilutions of rat serum and parathyroid gland extract, result in competitive inhibition curves that are parallel to that of highly *purified* bPTH. Under our assay conditions the C2-7 antibody cross-reacts well with intact PTH but synthetic fragments of the hormone (1-34bPTH, 1-34hPTH, 28-48hPTH, 44-68hPTH, 53-84hPTH) do not depress tracer (125I-bPTH) binding to the antibody. Studies designed to validate the assay gave predictable results such as enhanced secretion of the hormone in response to EDTA infusion, and failure to detect the hormone in serum following thyroparathyroidectomy. In addition, we made the novel observation that in F344 rats circulating immunoreactive PTH increases progressively with aging.

5/3,AB/7
DIALOG(R)File 155:MEDLINE(R)

05444782 85060782
Serum aluminium in haemodialysis patients: relation to osteodystrophy, encephalopathy and aluminium hydroxide consumption.
Heaf JG; Nielsen LP
Miner Electrolyte Metab (SWITZERLAND) *1984*, 10 (6) p345-50, ISSN 0378-0392 Journal Code: M9Z
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The serum aluminium concentration of 82 patients undergoing regular dialysis treatment in a large dialysis department was measured. Duration of known uraemia, total cumulative aluminium hydroxide consumption, present level of aluminium hydroxide consumption and chronic interstitial nephropathy as primary kidney pathology were all positively correlated to serum aluminium concentration. Serum aluminium concentration was positively correlated to the incidence of clinical osteodystrophy and negatively correlated to bone mineral content. There was, however, no correlation to *parathyroid* *hormone* concentration or parathyroidectomy. The highest serum aluminium concentration was accompanied by clinical dialysis encephalopathy. The centre uses reverse osmosis for water *purification*, and there has never been measurable aluminium contamination. On the basis of these findings it is concluded that: the source of aluminium in our patients is aluminium hydroxide consumption and not the dialysis water; aluminium plays no role in the development of osteitis fibrosa; the findings are consistent with the theory that hyperaluminaemia plays a role in the development of osteomalacia, and serum aluminium measurement may be useful in the diagnosis of dialysis encephalopathy.

5/3,AB/8
DIALOG(R)File 155:MEDLINE(R)

05387429 85003429
Effects of *human* erythrocyte guanine nucleotide-binding regulatory protein on *parathyroid* *hormone*-responsive adenylate cyclase from canine renal cortex.
Levine MA; Greene A; Turner RT; Bell NH
Endocrinology (UNITED STATES) Oct *1984*, 115 (4) p1386-91, ISSN 0013-7227 Journal Code: EGZ
Contract/Grant No.: RR-00035; RR-00722
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We studied the effects of the guanine nucleotide-binding regulatory protein (Gs) from *human* erythrocytes on PTH-responsive adenylate cyclase from partially *purified* membranes of canine renal cortex (CRC). Extracts of erythrocyte membranes, containing soluble Gs, was obtained by treatment with a detergent (Lubrol PX). Gs did not stimulate adenylate cyclase activity by itself, but amplified the response of adenylate cyclase in CRC membranes to both synthetic bovine PTH-(1-34) [bPTH-(1-34)] and to the hydrolysis-resistant GTP analog 5'-guanylimido-diphosphate [Gpp(NH)p]. Gs increased PTH stimulation of adenylate cyclase activity in both the presence and absence of Gpp(NH)p. In the absence of Gpp(NH)p, the potentiating effect of Gs occurred only when the concentration of bPTH-(1-34) was greater than 10 ng/ml. bPTH-(1-34), Gpp(NH)p, and Gs each enhanced the catalytic activity of adenylate cyclase when added separately or in combination by increasing the apparent maximum velocity (Vmax) of the enzyme without altering the apparent Km for MgATP. The effect of Gs on CRC membrane adenylate cyclase activity in the presence of NaF (10 mM) and forskolin (100 microM) was also examined. NaF- and forskolin-stimulated enzyme activities were significantly increased by Gs in both the presence and absence of Gpp(NH)p (100 microM). Analysis of double reciprocal plots of substrate concentration and enzyme activity revealed that NaF and forskolin increased the Vmax of the catalytic activity and did not alter the apparent Km of the enzyme for MgATP. These data support the role of Gs as a regulator of the response of adenylate cyclase to hormones, guanyl

nucleotides, NaF, and forskolin. Our studies address the relative functional stoichiometry between Gs and catalytic unit present in CRC membranes and suggest that the CRC adenylate cyclase system must contain insufficient Gs to couple with all available catalytic units. These results are consistent with the possibility that deficiency of Gs impairs hormonal stimulation by diminishing the apparent Vmax of the catalytic unit and does not alter the apparent affinity of the enzyme for MgATP.

5/3,AB/9
DIALOG(R)File 155:MEDLINE(R)

05353750 84277750
Evidence of increased parathyroid activity on discontinuation of high-aluminum dialysate in patients undergoing hemodialysis. O'Hare JA; Murnaghan DJ
Am J Med (UNITED STATES) Aug *1984*, 77 (2) p229-32, ISSN 0002-9343 Journal Code: 3JU
Languages: ENGLISH
Document type: JOURNAL ARTICLE
High-aluminum dialysate exposure has been incriminated in the pathogenesis of vitamin D-resistant osteomalacia in patients undergoing long-term hemodialysis. Parathyroid-mediated osteitis fibrosa is rare in these patients. Thirteen patients undergoing longterm hemodialysis were transferred from a center (Unit A) where water used to prepare dialysate was high in aluminum (100 to 450 micrograms/liter) to a new center (Unit B) where dialysate was highly *purified* (aluminum concentration less than 10 micrograms/liter), and changes in calcium metabolism were studied over a 12-month period. After transfer of patients to Unit B, serum aluminum levels fell (p less than 0.01), whereas serum immunoreactive *parathyroid* *hormone* levels rose (p less than 0.01) over 10 months. Over this time, predialysis serum calcium levels did not alter significantly, whereas postdialysis serum calcium levels declined slightly (p less than 0.05). Serum phosphate levels did not alter. Serum alkaline phosphatase levels rose progressively in Unit B (p less than 0.001). Discontinuation of dialysate high in aluminum in patients undergoing long-term hemodialysis may facilitate a rise in parathyroid activity.

5/3,AB/10
DIALOG(R)File 155:MEDLINE(R)

05262162 84186162
Egg yolk as a source of antibodies for *human* *parathyroid* *hormone* (hPTH) radioimmunoassay.
Vieira JG; Oliveria MA; Russo EM; Maciel RM; Pereira AB
J Immunoassay (UNITED STATES) *1984*, 5 (1-2) p121-9, ISSN 0197-1522 Journal Code: HS8
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Chickens were immunized with synthetic hPTH peptides 1-34 and 53-84. Serum from the best responder of each group was compared with IgG obtained from yolk of eggs layed by the same chicken, showing similar properties. A simple method for *purification* of IgG from yolk is described, allowing the obtaining of substantial amounts of anti-hPTH IgG without the need for bleeding the animals. We conclude that: 1) egg from chickens immunized with synthetic hPTH peptides are a convenient source of antibodies against these peptides; 2) this principle should apply to any other antigen to which chickens are good responders.

5/3,AB/11
DIALOG(R)File 155:MEDLINE(R)

05261690 84185690
Parathyroid *hormone* receptors in circulating *human* mononuclear leukocytes.
Perry HM 3d; Chappel JC; Bellorin-Font E; Tamao J; Martin KJ; Teitelbaum SL
J Biol Chem (UNITED STATES) May 10 *1984*, 259 (9) p5531-5, ISSN 0021-9258 Journal Code: HIV
Contract/Grant No.: DE05413; AM07033; AM09976
Languages: ENGLISH
Document type: JOURNAL ARTICLE
In this article we demonstrate receptors for *parathyroid* *hormone* in circulating mononuclear leukocytes using the radioiodinated analogue (8,18 norleucine, 34 tyrosine) bPTH 1-34 (bovine *parathyroid* *hormone* 1-34). Specific binding, which is reversible and saturable, equilibrates within 5 min at 0-4 degrees C with a calculated KD of 8.9 X 10(-11) M. This binding has a pH maximum of 7.0, is magnesium-dependent, and is inversely related to medium calcium concentration. Such

binding is completely inhibited by simultaneous addition of 4 ng/ml of bovine *parathyroid* *hormone* 1-34, 5 ng/ml of bovine *parathyroid* *hormone* 1-84, or 5 ng/ml (8,18 norleucine, 34 Tyr) of 3-34 bPTH, but is unaffected by a biologically inactive *parathyroid* *hormone* fragment or other unrelated peptide hormones. Cyclic AMP accumulation increases 3-fold after 5 min exposure of mononuclear leukocytes to bPTH 1-34 in concentrations as low as 1 X 10(-9) M. Lymphocytes appear to be the circulating cells which interact with PTH as indicated by the observations that: 1) lymphocyte-enriched preparations bind three times as much radioligand/cell as do mixed mononuclear leukocytes, 2) monocytes, platelets, granulocytes, and erythrocytes do not bind PTH, and 3) monocytes, but not lymphocytes, degrade the hormone.

5/3,AB/12
DIALOG(R)File 155:MEDLINE(R)

05211846 84135846
Gene encoding *parathyroid* *hormone*. Nucleotide sequence of the rat gene and deduced amino acid sequence of rat preproparathyroid hormone. Heinrich G; Kronenberg HM; Potts JT Jr; Habener JF
J Biol Chem (UNITED STATES) Mar 10 *1984*, 259 (5) p3320-9, ISSN 0021-9258 Journal Code: HIV
Contract/Grant No.: AM29669; AM11794
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The nucleotide sequence of the rat *parathyroid* *hormone* (PTH) gene was established from a 14.5-kilobase pair fragment of rat liver DNA cloned in bacteriophage Charon 4A. The transcriptional unit of the gene of 2.5 kilobase pairs is interrupted by two introns (1600 and 111 base pairs). Blot hybridization of restriction enzyme digests of rat spleen DNA using 32P-labeled fragments of the cloned PTH gene suggests that the gene is unique and present in a single copy in the genome. A promoter sequence (Goldberg-Hogness or TATA box) is situated 28 base pairs upstream from the point of initiation of transcription which was found by S1 nuclease mapping and by oligonucleotide-primed reverse transcription of rat PTH mRNA. The gene is flanked on its 5' side by repetitive DNA and contains a different, more abundant repetitive DNA on its 3' side. The mRNA encoded by the *parathyroid* *hormone* gene consists of 800 +/- 50 nucleotides as determined by electrophoresis on agarose gels. The 5' untranslated region of the mRNA contains three AUG triplets. Only one AUG triplet initiates biosynthesis of preproparathyroid hormone (prepro-PTH). The 3' untranslated segment of the mRNA contains two AATAAA sequences characteristic of polyadenylation signals. The mRNA encodes prepro-PTH, a precursor of PTH of 115 amino acids. When the amino acid sequence of the rat precursor is compared with the analagous bovine and *human* precursors, it becomes evident that the hormone sequences are highly conserved in two regions of known function near the NH2 terminus and in a third region near the carboxyl terminus whose biologic function, if any, has not yet been defined.

5/3,AB/13
DIALOG(R)File 155:MEDLINE(R)

05211790 84135790
Phosphorylation of *parathyroid* *hormone* by *human* and bovine parathyroid glands.
Rabbani SA; Kremer R; Bennett HP; Goltzman D
J Biol Chem (UNITED STATES) Mar 10 *1984*, 259 (5) p2949-55, ISSN 0021-9258 Journal Code: HIV
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Human and bovine parathyroid gland slices were incubated in vitro for varying time periods with inorganic 32P and [35S]methionine or [3H]serine. Tissue was then extracted with aqueous medium, and *parathyroid* *hormone* (PTH) *purified* . Incorporated 32P was found to coelute with immunoreactive PTH in multiple chromatographic systems, and a peak of phosphorylated material could be resolved from the nonphosphorylated hormone by reversed phase high pressure liquid chromatography. The amino acid composition of both the phosphorylated and the nonphosphorylated entities conformed to that of the major glandular species of PTH, and phosphorylated hormone accounted for 10-20% of the total. A time course revealed slow incorporation of 32P into hormone, and after a 4-h preincubation with inorganic 32P, co-elution of 32P with both PTH and its precursor was observed. Phosphoserine was identified in *purified* PTH labeled with [3H]serine. Additionally dilute acid hydrolysis of PTH, labeled with [35S]methionine and containing 32P, generated an 35S-labeled fragment with which 32P co-chromatographed. The results are consistent with in vitro phosphorylation of PTH on serine residues within the NH2-terminal region of the hormone by both *human* and bovine glands and suggest that phosphorylation of the prohormone occurs as well.

5/3,AB/14
DIALOG(R)File 155:MEDLINE(R)

05187932 84111932
Possible existence of anti-renal tubular plasma membrane autoantibody which blocked *parathyroid* *hormone* -induced phosphaturia in a patient with pseudohypoparathyroidism type II and Sjogren's syndrome. Yamada K; Tamura Y; Tomioka H; Kumagai A; Yoshida S
J Clin Endocrinol Metab (UNITED STATES) Feb *1984*, 58 (2) p339-43, ISSN 0021-972X Journal Code: HRB
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We examined the effects of serum from a patient with pseudohypoparathyroidism type II and Sjogren's syndrome on renal function in rats. Infusion of 50-100 mg of the patient's immunoglobulin G (IgG) fraction inhibited the PTH-induced increase in urinary phosphate excretion, but had no effect on the PTH-induced increase in urinary cAMP excretion. Infusion of the IgG fraction obtained from the sera of control subjects did not affect PTH-induced increases in urinary excretion of either cAMP or phosphate. Binding of the patient's serum IgG fraction to the membrane of isolated rat renal cortical tubules was observed by immunofluorescent techniques. We conclude that the IgG fraction from the serum of this patient with pseudohypoparathyroidism type II and Sjogren's syndrome contains an autoantibody(ies) reacting with a component(s) of renal tubular plasma membranes and blocking PTH-induced phosphaturia.

5/3,AB/15
DIALOG(R)File 155:MEDLINE(R)

05157871 84081871
New bone resorption stimulation factor elaborated by a *human* osteosarcoma cell line.
Eilon G; Trummel C; Kream B; Viola MV
Cancer Res (UNITED STATES) Jan *1984*, 44 (1) p209-14, ISSN 0008-5472 Journal Code: CNF
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The FM-2 cell line is a cloned, immortalized cell line derived from a *human* osteosarcoma. Conditioned medium from FM-2 cultures contains a factor which stimulates calcium mobilization from fetal rat bone organ cultures. Treated bones contain increased numbers of osteoclasts and decreased bone matrix. This factor has a molecular weight of approximately 29,000 as determined by gel filtration. Its biological activity is dependent on a protein moiety and is completely inhibited by calcitonin. Its synthesis by the FM-2 line is dependent on cell density and replenishment of fresh medium. This factor is not *parathyroid* *hormone*, a vitamin D metabolite, prostaglandin E, epidermal growth factor, or osteoclast-activating factor, all of which have bone-resorbing activities. Also, FM-2-conditioned medium inhibits collagen synthesis in fetal rat calvaria cells and decreases alkaline phosphatase levels in an osteoblastic cell line, and these two properties coelute with the calcium-mobilizing factor from a hydroxylapatite column. These biological products, synthesized by a cell line derived from a tumor, may represent physiological factors normally synthesized by a subpopulation of bone cells.

5/3,AB/16
DIALOG(R)File 155:MEDLINE(R)

05096101 84020101
Effect of multiplication-stimulating activity (MSA) on the cyclic AMP level and proteoglycan synthesis in cultured chondrocytes.
Tsuji M; Kato Y; Nomura Y; Kinoshita M; Kumahara Y; Suzuki F Acta Endocrinol (Copenh) (DENMARK) Sep *1983*, 104 (1) p117-22, ISSN 0001-5598 Journal Code: 0NC
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Multiplication-stimulating activity (MSA), a somatomedin *purified* from conditioned medium of Buffalo rat liver cells, had little effect on the intracellular level of cyclic AMP when it markedly enhanced the synthesis of sulphated glycosaminoglycans in rabbit chondrocytes in culture. In addition, MSA did not inhibit prostaglandin E1- or *parathyroid* *hormone* -induced accumulation of cyclic AMP in the chondrocytes. On the contrary, MSA slightly decreased stimulation of cyclic AMP accumulation by prostaglandin in *human* fibroblasts. Dibutyryl cyclic AMP and MSA increased the incorporation of [35S]sulphate and [3H]serine into proteoglycans synthesized by rabbit chondrocytes, and their effects were additive. These findings suggest that somatomedin and dibutyryl cyclic AMP enhance sulphate proteoglycan synthesis through different mechanisms. The lack of inhibitory effect of MSA on cyclic AMP accumulation may be favourable for producing additive effects with cyclic AMP on proteoglycan synthesis and DNA synthesis in chondrocytes.

5/3,AB/17
DIALOG(R)File 155:MEDLINE(R)

J Biol Chem (UNITED STATES) Dec 10 *1982*, 257 (23) p14048-54, ISSN 0021-9258 Journal Code: HIV
Languages: ENGLISH
Document type: JOURNAL ARTICLE

Iodinated native bovine *parathyroid* *hormone* (bPTH(1-84)) was separated from uniodinated hormone by reversed-phase liquid chromatography techniques after lactoperoxidase labeling. Analysis of iodinated residues after enzymatic digestion indicated that the major labeled product was largely monoiodinated on the sole tyrosine residue. This material retained full bioactivity in an in vitro renal adenylate cyclase assay. Binding of 125I-bPTH(1-84) to rabbit renal membranes at 4 degrees C was proportional to membrane protein concentration and was saturable and dissociable. Radioligand binding was inhibited by concentrations of unlabeled bPTH(1-84) required to stimulate adenylate cyclase in the same membrane preparation but was not inhibited by non-PTH peptides other than adrenocorticotropin at high concentrations (greater than 10 microM). Synthetic NH2-terminal analogues of bPTH(1-84) all elicited approximately equivalent inhibition of radioligand binding which was, however, less potent than unlabeled bPTH(1-84), suggesting a role for the carboxyl region of the molecule in the interaction of bPTH(1-84) with its receptor. Activity of the NH2-terminal agonists was similar to bPTH(1-84) in stimulating adenylate cyclase. Although substitution in sequence position one, of serine in *human* PTH(1-34) for alanine in bPTH(1-34), reduced activity in the adenylate cyclase assay, inhibition of 125I-bPTH(1-84) binding by both peptides and by an analogue of bPTH(3-34) was equivalent, consistent with a minimal contribution of the first 2 residues for receptor binding of the NH2-terminal region of PTH. The results illustrate the utility of the radiolabeled preparation of native bPTH we have developed and emphasize the importance of probing the PTH receptor with an intact hormone to maximize information concerning the mechanism of PTH action.

5/3,AB/24
DIALOG(R)File 155:MEDLINE(R)

04798278 83031278
Characterisation of the binding sites of anti-*parathyroid* *hormone* antisera using synthetic *parathyroid* *hormone* peptides. Atkinson MJ; Juppner H; Niepel B; Casaretto M; Zahn H; Hesch RD J Immunoassay (UNITED STATES) *1982*, 3 (1) p31-51, ISSN 0197-1522 Journal Code: HS8
Languages: ENGLISH
Document type: JOURNAL ARTICLE

Four antisera raised against partly *purified* PTH preparations all showed a wide range of specificities when reacting with radioiodinated PTH peptides representing several different portions of the intact hormone sequence. In contrast, antisera raised against individual peptides were only able to cross-react with other peptides that contained all or part of their amino acid sequence in common. Cross-reacting peptides were seen to contain one or more amino acid residues having high interspecies variability in common. We have explained the antigenicity and cross-reactivity of the peptides on the basis of these common highly variable amino acid sequences. We have concluded that the selection of hormonal material in radioimmunoassays for PTH should be made on the basis of the highly variable amino acid residue content. This will allow a narrowing of the assay specificities and permit detection of a desired region of the PTH hormone.

5/3,AB/25
DIALOG(R)File 155:MEDLINE(R)

04737325 82280325
Parathyroid *hormone* bioassay using *human* kidney cortical cells in primary culture.
Zonefrati R; Brandi ML; Rotella CM; Selli C; Toccafondi R Acta Endocrinol (Copenh) (DENMARK) Jul *1982*, 100 (3) p398-405, ISSN 0001-5598 Journal Code: 0NC
Languages: ENGLISH
Document type: JOURNAL ARTICLE

The biological activity of *parathyroid* *hormone* (PTH) has been investigated by measuring intracellular accumulation of cyclic AMP (cAMP) in *human* kidney cortical cultures. Enzyme dispersed cortical cells from non-invaded kidney poles of patients undergoing nephrectomy for cancer were used after 5 days of primary culture. Bovine PTH (1-84) produced a significant increase of cAMP accumulation in cultured cells at a dose (53.7 ng/ml) 10-fold lower than that found for the minimal stimulatory effect when using preparations of *human* *purified* plasma membranes. The action of bovine PTH (1-84) was very rapid, a response was detected after 5 min and a ceiling effect after 30 min. Cortical cells showed a slightly lower sensitivity to synthetic bovine PTH (1-34) (half maximal increase dose: 0.66 microgram/ml), compared to bovine PTH (1-84) (half maximal increase dose: 0.32 microgram/ml), but revealed a higher sensitivity to *human* PTH *purified* from the medium of parathyroid cell cultures (half maximal increase dose: 11.2 ng/ml). Arginine-vasopressin (AVP) also increased the cAMP accumulation of kidney cortical cultured cells, with a potency and efficacy lower than that of *human* 'culture' PTH, while in kidney medullary cells in primary culture AVP exerted a strong response and the effect of PTH was poor or absent.

Calcitonin and glucagon were weak stimulators of kidney cortical cell cAMP accumulation.

5/3,AB/26
DIALOG(R)File 155:MEDLINE(R)

04691179 82234179
Homologous radioimmunoassay for *human* parathyrin (residues 53-84). Hitzler W; Schmidt-Gayk H; Spiropoulos P; Raue F; Hufner M Clin Chem (UNITED STATES) Aug *1982*, 28 (8) p1749-53, ISSN 0009-9147 Journal Code: DBZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We describe a sequential saturation double-antibody radioimmunoassay for carboxyl-terminal fragments of *human* parathyrin (hPTH) in serum. Standards are prepared with synthetic hPTH (residues 53-84) in hPTH-free serum. Antisera are obtained by immunizing guinea pigs with partly *purified* hPTH extracted from adenomatous glands. Tracer is prepared by labeling hPTH (53-84), presumably at the histidine residue, with 125I by the Chloramine T method at pH 8.6. Dilution curves for hPTH extracted from adenomas are superimposable on dilution curves for the synthetic 53-84 fragment. Dilution of sera from hyperparathyroid patients showed linearity of response with concentration in the present assay, but non-linearity in the heterologous radioimmunoassay. In contrast to the heterologous system, which discriminated 28 of 32 patients with primary hyperparathyroidism from 32 normals (normal range: undetectable to 54 pmol/L, omitting the highest and lowest values from controls), the present assay separated these groups without overlap.

5/3,AB/27
DIALOG(R)File 155:MEDLINE(R)

04638029 82181029
Polypeptide and amine hormone regulation of adenylate cyclase. Aurbach GD
Annu Rev Physiol (UNITED STATES) *1982*, 44 p653-66, ISSN 0066-4278 Journal Code: 6E7
Languages: ENGLISH
Document type: JOURNAL ARTICLE; REVIEW

5/3,AB/28
DIALOG(R)File 155:MEDLINE(R)

04599348 82142348
Purification and partial characterization of a protein from cancer ascites fluid which stimulates the resorption of bone explants in vitro. Nimberg RB; Humphries DE; Lloyd WS; Wells H; Schmid K
J Biol Chem (UNITED STATES) Mar 10 *1982*, 257 (5) p2477-82, ISSN 0021-9258 Journal Code: HIV
Contract/Grant No.: CA-22062; GM-10374
Languages: ENGLISH
Document type: JOURNAL ARTICLE
A protein capable of stimulating bone resorption in vitro has been *purified* approximately 1250-fold from cancer ascites fluid. *Purification* was accomplished employing successive fractionation with ammonium sulfate, ion exchange, and Cibacron blue affinity chromatography, isoelectric focusing, and selective adsorption on hydroxylapatite. The bone-resorptive protein obtained by this procedure appeared homogeneous in polyacrylamide gels at pH 9.5, migrating with the mobility of an alpha 2-globulin, and in sodium dodecyl sulfate polyacrylamide gels from which an apparent molecular weight of 43,000 was calculated. The amino acid composition of the bone-resorptive protein distinguished itself by the absence of methionine and by its relatively high content of glycine (17%) and proline (11%). Furthermore, the protein possesses a single NH2-terminal amino acid residue (glycine). The ascites protein was found to contain 19% carbohydrate by weight including a high content of sialic acid (15 residues/mol) as compared to the other sugars (27 residues/mol). As to its biological properties, the homogeneous ascites glycoprotein proved to be as potent as *parathyroid* *hormone* in its ability to stimulate bone resorption in vitro.

5/3,AB/29
DIALOG(R)File 155:MEDLINE(R)

04583474 82126474
Parathyroid *hormone*: chemistry and structure-activity relations. Rosenblatt M
Pathobiol Annu (UNITED STATES) *1981*, 11 p53-86, Journal Code: ORW Contract/Grant No.: AM 11794
Languages: ENGLISH
Document type: JOURNAL ARTICLE; REVIEW
Peptide synthesis and the application of a wide range of biological assays have permitted intensive and detailed study of structure-activity relations for *parathyroid* *hormone*. Within the structure of the hormone molecule reside largely distinct domains critical for receptor binding or activation of adenylate cyclase in addition to receptor binding. Subtle modifications of hormonal structure can cause striking changes in hormone potency or in the nature of the biological properties displayed by such analogs. For *parathyroid* *hormone* , structure-activity studies have identified several discrete regions of the molecule that are responsible for independent biological functions. It was determined that these separate functions are displayed in an almost linear fashion along the primary sequence of the hormone--a conceptual framework that has greatly facilitated synthesis of *parathyroid* *hormone* analogs. The amino-terminal region of the initially biosynthesized precursor form of *parathyroid* *hormone* , pre-proparathyroid hormone, - 31 through - 7, contains a leader or signal sequence. Despite differences in sequence of the *parathyroid* *hormone* signal region and other precursor-specific sequences, this region of the molecule possesses biological properties related to intracellular transport and metabolism that appear to be universal for precursor forms of many, if not all, peptide hormones and other secreted proteins. In contrast, the amino-terminal portion of the secreted form of the molecule, sequence region 1-34, has an amino acid sequence that is homologous to that of several peptide hormones, including ACTH, alpha-MSH, beta-MSH, and beta-lipotropin. Yet the biological "message" conveyed by this peptide sequence appears unique to *parathyroid* *hormone* . Directions have now been established for the design of hormone inhibitors and for analogs of enhanced biological activity and perhaps even analogs possessing an altered spectrum of biological properties. The rapid advances that are occurring in techniques for peptide synthesis, *purification* , and analysis; in the variety, sensitivity, and specificity of the increasing number of bioassays; and in the elucidation of peptide and protein conformation may provide further important new directions for analog design. Extension of these investigations of structure and function over the next several years should yield a more sophisticated understanding of the mode of hormone action. In such studies lies the promise of generating highly refined and perhaps clinically useful analogs of *parathyroid* *hormone*.

5/3,AB/30
DIALOG(R)File 155:MEDLINE(R)

04436603 81264603
A *human* parathyroid carcinoma that produces *parathyroid* *hormone*: long term maintenance in tissue culture.
Pattillo RA; Ruckert AC; Wilson SD; Hussa RO; Gray RW; Lemann J Jr J Clin Endocrinol Metab (UNITED STATES) Sep *1981*, 53 (3) p641-4, ISSN 0021-972X Journal Code: HRB
Contract/Grant No.: AM-15089; RR-00058; CA-23357
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Parathyroid carcinoma cells from a pulmonary metastasis of a patient with a serum Ca of 17 mg/dl and an immunoreactive *parathyroid* *hormone* (PTH) of 6.4 ng eq bovine (b) PTH/ml (normal 40--400 pg/ml) have been maintained in tissue culture for more than 2 1/2 years. The cells secrete PTH into the culture media that 1) during immunoassay dilutes in parallel to *human* hyperparathyroid serum, 2) has a molecular weight similar to intact highly *purified* bPTH, and 3) stimulates bone resorption in a manner that is equivalent and additive to synthetic bPTH-(1--34).

5/3,AB/31
DIALOG(R)File 155:MEDLINE(R)

04387880 81215880
Radioimmunoassay for the middle region of *human* *parathyroid* *hormone* : studies with a radioiodinated synthetic peptide.
Marx SJ; Sharp ME; Krudy A; Rosenblatt M; Mallette LE
J Clin Endocrinol Metab (UNITED STATES) Jul *1981*, 53 (1) p76-84, ISSN 0021-972X Journal Code: HRB
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We radioiodinated a synthetic fragment representing residues 44-68 from the middle region of *human* *parathyroid* *hormone* (hPTH). At least 90% of the *purified* [125I]-hPTH-(44-68) was able to bind to anti-hPTH serum. Antibody-bound [125I]hPTH-(44-68) could be rapidly and efficiently separated from nonbound radioligand by dextran-coated charcoal. [125I]hPTH-(44-68) was not degraded after a 72-h incubation in undiluted plasma at 7 C, and it was stable for many weeks at -20 C in a 1% albumin buffer. [125I]hPTH-(44-68) was used to develop midregion specific PTH RIAs. The

immunoreactive PTH concentration in plasma was above the upper limit of the normal range in 39 of 43 patients with primary hyperparathyroidism. Values from the midregion assay and an established carboxy-terminus assay correlated using peripheral plasma from 17 patients with primary hyperparathyroidism (r = 0.84; P less than 0.0001) or using parathyroid gland venous effluent plasma from the same 17 patients (r = 0.79; P less than 0.0005). Gel filtration analysis of peripheral plasma from 2 patients with primary hyperparathyroidism and azotemia suggested peptides possessing midregion immunoreactivity but deficient in carboxyterminus immunoreactivity. Similar peptides were present at higher concentrations in parathyroid gland venous effluent plasma than in peripheral plasma, indicating release from the parathyroid gland. In conclusion, [125I]hPTH-(44-68) had properties favorable for the development of RIAs reactive solely with the midregion of PTH. Fragments secreted in vivo by two *human* parathyroid glands were reactive in midregion assays but nonreactive in a carboxy-terminus assay.

5/3,AB/32
DIALOG(R)File 155:MEDLINE(R)

04364366 81192366
An homologous and sensitive radioimmunoassay for the synthetic amino-terminal (1-34) fragment of *human* *parathyroid* *hormone* : application to the clearance of this peptide administered in vivo. Zanelli JM; Rafferty B; Stevenson RW; Parsons JA
J Immunoassay (UNITED STATES) *1980*, 1 (3) p289-308, ISSN 0197-1522 Journal Code: HS8
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The synthetic 1-34 amino-terminal fragment of *human* *parathyroid* *hormone* (hPTH 1-34) is undergoing multicentre clinical trials to assess its long term therapeutic potential in the treatment of osteoporosis. An homologous radioimmunoassay (reagents prepared from the synthetic hPTH 1-34 peptide) has been developed to monitor the pharmacokinetics of hPTH 1-34 in man and in a dog model. The assay is rugged, sensitive (detection limit 1.75 x 10(-11) moles/litre) and precise (coefficient of variation 6%). Three different ampouled preparations of the native intact hPTH 1-84, of different degrees of purity (approximately 3%-90% pure) gave complete log dose response curves parallel to that of the ampouled synthetic hPTH 1-34 peptide, and were equipotent on a molar basis. Native intact bovine PTH 1-84 showed an incomplete non-parallel displacement curve; there was no recognition of synthetic hPTH 44-68 and 53-84 peptides. Preliminary application of the assay to the determination of the plasma disappearance of hPTH 1-34 in man and dog gave half-times (t1/2) of 3-8 minutes for a first exponential component and 12-18 minutes for the second; in the dog, metabolic clearance rate was calculated to be 9ml/kg/minute and the distribution space 160ml/kg.

5/3,AB/33
DIALOG(R)File 155:MEDLINE(R)

04358628 81186628
Structural similarities between the hypocalcemia hormone of the corpuscles of Stannius of the eel (Anguilla anguilla L.) and the mammalian *parathyroid* *hormone*]
Similitudes structurales entre l'hormone hypocalcemiante des corpuscules de Stannius (PCS) de l'Anguille (Anguilla anguilla L.).
Milet C; Hillyard CJ; Martelly E; Girgis S; Intyre IM; Lopez E C R Seances Acad Sci D (FRANCE) Dec 8 *1980*, 291 (12) p977-80, ISSN 0567-655X Journal Code: C9E
Languages: FRENCH Summary Languages: ENGLISH
Document type: JOURNAL ARTICLE English Abstract
Extracts of the corpuscules of Stannius enhance Eel gill calcium efflux and increase bone resorption in the Rat. Thus the hormone is hypocalcaemic in the Eel although hypercalcaemic in the Rat. We show here that a 15 min. pulse perfusion of a synthetic fragment of *human* PTH 1-34 had a similar effect on gill calcium fluxes to that of CS extract. Further, we found that Eel plasma contains a substance reacting with five different antibodies against bovine PTH. The concentration of this plasma material is enhanced seven-fold by parenteral calcium and rendered extremely low or absent by CS removal. A convenient name for this major calcium-regulating hormone is parathyrine of the corpuscles of Stannius (PCS) since this reflects both its glandular source and chemical structure.

5/3,AB/34
DIALOG(R)File 155:MEDLINE(R)

04301685 81129685

A radioimmunoassay for *human* *parathyroid* *hormone* utilizing a goat anti-bovine PTH serum.
Mallette LE
Acta Endocrinol (Copenh) (DENMARK) Feb *1981*, 96 (2) p215-21, ISSN 0001-5598 Journal Code: 0NC
Languages: ENGLISH
Document type: JOURNAL ARTICLE
An antiserum (NG-1) against bovine PTH (bPTH) generated in the domestic goat was characterized for use in the radioimmunoassay of PTH in *human* serum. When a carboxyterminal fragment of bPTH is used as radioligand, this antiserum detects only an antigenic site in the central region of the hPTH molecule. The synthetic hormone fragment, hPTH-(44-68), will displace 93% of the tracer, after which the addition of intact hPTH causes no further displacement. The assay does not detect the synthetic aminoterminal 1-34 fragment of the bovine or *human* hormones, nor the carboxyterminal fragment of the *human* hormone, hPTH-(53-84). Standard curves with bPTH-(1-84) and partially *purified* hPTH are not parallel, so that hPTH is used as standard. Serum from subjects with uraemia or primary hyperparathyroidism gives dilution curves parallel to that with the hPTH standard. The assay with NG-1 has been applied to the diagnosis of primary and secondary hyperparathyroidism, used to monitor the disappearance of PTH after parathyroidectomy, and for measurement of PTH in selective venous samples.

5/3,AB/35
DIALOG(R)File 155:MEDLINE(R)

04215939 81043939
The *parathyroid* *hormone*-sensitive adenylate cyclase system in plasma membranes of rat liver.
Neuman WF; Schneider N
Endocrinology (UNITED STATES) Dec *1980*, 107 (6) p2082-7, ISSN 0013-7227 Journal Code: EGZ
Contract/Grant No.: AM-17074
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Purified plasma membranes were prepared from normal rat livers. These membranes were unable to degrade *parathyroid* *hormone* (PTH), bovine PTH-(1-84) [bPTH-(1-84)], or bPTH-(1-34). The entire molecule bPTH-(1-84) caused a marked activation of adenylate cyclase (cAMP production increased over 5-fold), with half-maximal stimulation at 6.9 X 10(-8) M. The amino-terminal fragment bPTH-(1-34) was equipotent but gave a smaller maximal cAMP production. The *human* (h) amino acid sequence, hPTH-(1-34) was only weakly effective at a concentration of 10(-5) M. A similar species specificity was shown with crude rat renal cortical membranes. Of a variety of ligands, only glucagon and 10(-3) M F- were cyclase activators in these liver plasma membranes. Binding of [125I]iodo-bPTH by these membranes was fairly extensive but showed a saturation of binding only at high hormone concentrations (> 10(-6) M). Clearly, cleavage of the intact molecule PTH-(1-84) is not required for activation of the adenylate cyclase system of liver membranes. It appears that two rat tissues, liver and kidney, exhibit some species specificity in cyclase activation, i.e. the hPTH-(1-34) (Niall sequence) is inactive.

5/3,AB/36
DIALOG(R)File 155:MEDLINE(R)

04118265 80229265
Development of homologous immunological assays for *human* *parathyroid* *hormone*.
Manning RM; Hendy GN; Papapoulos SE; O'Riordan JL
J Endocrinol (ENGLAND) Apr *1980*, 85 (1) p161-70, ISSN 0022-0795 Journal Code: I1J
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Antisera to a trichloroacetic-acid precipitate of *human* *parathyroid* *hormone* (PTH) were produced in goats. Two of these antisera (G36 and G31) were of high affinity, and the bovine and porcine hormones were less reactive. Synthetic peptides containing the amino-terminal region of *human* PTH reacted with both antisera; the 1--34 peptide (PTH-(1--34)), with the sequence proposed by Niall, Sauer, Jacobs, Keutmann, Segre, O'Riordan, Aurbach & Potts in 1974, was more reactive than that having the sequence proposed by Brewer, Fairwell, Ronan, Sizemore & Arnaud in 1972. The antisera were further characterized with a number of other native and synthetic fragments of *human* PTH and reacted poorly with fragments from the carboxy-terminal region of the molecule. Since the amino-terminal fragments did not account for all the immunoreactivity, it is assumed that the antisera had some recognition sites for the central part of the molecule. Highly *purified* *human* PTH-(1==84) was labelled with 125I and radioimmunoassays were developed using this tracer and antiserum G36. To avoid the problems associated with labelling *human* PTH with 125I, a labelled antibody assay was developed with G36 and an immunoadsorbent consisting of *human* PTH-(1--34) (sequence of Niall et al.) coupled to cellulose. A sensitive homologous amino-terminal specific assay was developed in this way.

5/3,AB/37
DIALOG(R)File 155:MEDLINE(R)

04067613 80178613
Calciotropic hormones and lipolysis of *human* adipose tissue: role of extracellular calcium as conditioning but not regulating factor. Ziegler R; Jobst W; Minne H; Faulhaber JD
Endokrinologie (GERMANY, EAST) Jan *1980*, 75 (1) p77-88, ISSN 0013-7251 Journal Code: EHJ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The influences of different calcium concentrations (0, 0.924 and 2.772 mMol/l) on lipolysis of in vitro incubated *human* adipose tissue slices or adipocytes were studied under the conditions of stimulation with isoproterenol and *parathyroid* *hormone* preparations or inhibition by insulin. Extractive bovine PTH (as well as synthetic PTH 1--34) stimulated glycerol release in a biphasic pattern similarly to isoproterenol; PTH was about half as potent as isoproterenol. The optimal conditions for lipolysis were observed using a calcium concentration of 0.924 mMol/l, whereas lipolysis was distinctly impaired at concentrations of 0 or 2.772 mMol/l; this was true for basal as well as isoproterenol- and PTH stimulated lipolysis or the inhibitory effect of insulin. In contrast to partially *purified* extractive calcitonin, pure synthetic calcitonin did not inhibit lipolysis. Isoproterenol- and PTH-administrations led to cAMP accumulation in the adipose tissue, this process was also diminished at the non-optimal calcium concentrations. The results suggest a conditioning, but not a regulating significance of extracellular calcium for lipolysis, whereas the importance of the lipolytic potency of PTH remains to be elucidated.

5/3,AB/38
DIALOG(R)File 155:MEDLINE(R)

03981309 80092309
A radioimmunoassay for plasma *parathyroid* *hormone* (PTH) using N-terminal PTH antiserum (author's transl)]
Kayamori R; Yamada Y; Ito S; Iwasaki Y; Hayashi M; Momotu T; Takai K; Miyashita M; Kaneko K; Shibata A; Nara Y; Suzuki M; Hirasawa Y Nippon Naibunpi Gakkai Zasshi (JAPAN) Nov 20 *1979*, 55 (11) p1372-83, ISSN 0029-0661 Journal Code: EZV
Languages: JAPANESE Summary Languages: ENGLISH
Document type: JOURNAL ARTICLE English Abstract
In order to investigate plasma bioactive PTH, we tried to assay the N-terminal portion of PTH by RIA. The antiserum to PTH was prepared by immunizing rabbits with a bovine 1-34 PTH conjugate BSA. A preparation of labeled PTH was radioiodinated by the chloramine-T or lactoperoxidase method. Labeled PTH was *purified* by means of adsorption by Quso G-32 powder or a sephadex G-50. The separation of the free and bound labeled hormone was performed by the dextran-coated charcoal method. The assay was carried out as follows: 0.2 ml diluted buffer (0.05 M, pH 8.6, veronal buffer), 0.1 ml standard PTH or sample to be tested, and 0.1 ml anti-PTH serum were mixed. After the first incubation at 4 degrees C for 4 days, 0.1 ml labeled PTH were added. After a second incubation at 4 degrees C for 12 hours, the assay tubes were centrifuged at 2,000 rpm for 30 min and the precipitates were counted. Various hypothalamic, pituitary and thyroid hormones did not interfere with the RIA for PTH. A dose response curve was obtained in a range from 100 pg to 5,000 pg per ml of standard PTH in this assay system. The serum immunoreactive PTH in healthy subjects values less than 290 pg per ml.

5/3,AB/39
DIALOG(R)File 155:MEDLINE(R)

03961386 80072386
Sensitivity of the antibovine *parathyroid* *hormone* serum 211/32 to synthetic fragments of *human* *parathyroid* *hormone*.
Mallette LE
J Clin Endocrinol Metab (UNITED STATES) Jan *1980*, 50 (1) p201-3, ISSN 0021-972X Journal Code: HRB
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The specificity of the guinea pig antibovine *parathyroid* *hormone* (anti-bPTH) serum, AS 211/32, for various regions of the PTH molecule was tested with synthetic fragments of *human* PTH (hPTH). The antiserum detected both hPTH-(1-34) and hPTH-(44--68) at about 0.5 fmol/tube but was 3- to 20-fold less sensitive to hPTH-(53--84). Nine of 10 anti-PTH sera also recognized hPTH-(44--68) better than hPTH-(53--84). The sensitivity of AS 211/32 and 6 other antisera to the amino-terminal region was highly dependent upon the nature of the tracer bPTH. One of 3 lots of highly *purified* bPTH tracer yielded assays which detected hPTH-(1--34) poorly. AS 211/32 is not purely an amino-terminal antiserum and with some tracer

preparations may show little amino-terminal specificity.

5/3,AB/40
DIALOG(R)File 155:MEDLINE(R)

03895903 80006903
Carboxyl-terminal fragments of *human* *parathyroid* *hormone* in parathyroid tumors: unique new source of immunogens for the production of antisera potentially useful in the radioimmunoassay of *parathyroid* *hormone* in *human* serum.
Di Bella FP; Gilkinson JB; Flueck J; Arnaud CD
J Clin Endocrinol Metab (UNITED STATES) Apr *1978*, 46 (4) p604-12, ISSN 0021-972X Journal Code: HRB
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We have found large quantities of immunoreactive carboxyl-terminal fragments of *human* *parathyroid* *hormone*)hPTH) in a previously discarded fraction [the 7.5% trichloroacetic acid (TCA)supernate] generated during extraction of intact hPTH from hyperfunctioning parathyroid tissue by the urea-TCA procedure. It is well established that serum RIAs directed toward the carboxyl-terminal region of hPTH are superior to those directed toward the amino-terminal region in the differential diagnosis of patients with suspected chronic parathyroid dysfunction. However, antisera that react with the carboxyl-terminal region of hPTH are not yet available for general use for these assays because of a lack of suitable hPTH immunogens. We immunized seven guinea pigs and two goats with the desalted 7.5% TCA supernate (containing about 2% carboxyl-terminal hPTH fragments); three of the guinea pigs and one goat produced high affinity antisera with predominant specificity for the carboxyl-terminal region of PTH. One of the guinea pig antisera had affinity for hPTH equal to that of our laboratory's best antiserum (GP1M) used in diagnostic RIAs for serum PTH. The use of this byproduct fraction as an immunogen should permit a large scale immunization program in large animals to provide standardized, species-and sequence-specific antisera potentially useful in RIAs for diagnosis of parathyroid disease.

5/3,AB/41
DIALOG(R)File 155:MEDLINE(R)

03891254 80002254
Plasma cyclic-AMP response to *parathyroid* *hormone* in Turner's syndrome and Albright's hereditary osteodystrophy.
Ashby JP; Renton WB; MacPherson JN; Price WH; Abbott SR
Clin Endocrinol (Oxf) (ENGLAND) Jun *1979*, 10 (6) p553-6, ISSN 0300-0664 Journal Code: DCI
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Purified bovine *parathyroid* *hormone* (BPTH) given by injection to five patients with Turner's syndrome, and seven healthy volunteers produced a significant rise in plasma cyclic AMP reacing a maximum within 10 min. In a pseudohypoparathyroid patient there was no increase. Urinary excretion of cyclic AMP exceeded the normal in three out of four patients with Turner's syndrome. Thus, if there is a relationship between Turner's syndrome and Albright's osteodystrophy it is with the incomplete form known as pseudo-pseudohypoparathyroidism.

5/3,AB/42
DIALOG(R)File 155:MEDLINE(R)

03817552 79194552
Production of hybridomas secreting monoclonal antibodies against the lympholine osteoclast activating factor.
Luben RA; Mohler MA; Nedwin GE
J Clin Invest (UNITED STATES) Jul *1979*, 64 (1) p337-41, ISSN 0021-9738 Journal Code: HS7
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The *human* lympholine osteoclast activating factor (OAF) is thought to be involved in several bone-destroying diseases. The current studies were designed to produce monoclonal antibodies against OAF for use in the subsequent design of immunoassays for OAF in clinical samples. Spleen cells from mice immunized with *purified* *human* OAF were hybridized with mouse plasmacytoma cells in vitro to yield hybridomas. Several clones of these hybridomas secreted into the culture medium antibodies, which neutralized the biological activity of OAF at dilutions as high as 1:100,000 relative to the initial culture medium. These antibodies did not interfere with the activities of *parathyroid* *hormone* in the same systems. These results

represent the first report of monoclonal antibodies against a *human* lympholine, and validate the concept that hybridoma production is a useful technique for developing antibodies against weak or scarce antigens.

5/3,AB/43
DIALOG(R)File 155:MEDLINE(R)

03803774 79180774
Studies of hypoparathyroidism and pseudohypoparathyroidism. Lewin IG; Papapoulos SE; Tomlinson S; Hendy GN; O'Riordan JL Q J Med (ENGLAND) Oct *1978*, 47 (188) p533-48, ISSN 0033-5622 Journal Code: QKZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Twenty eight hypocalcaemic patients were studied, 14 with primary hypoparathyroidism, nine with pseudohypoparathyroidism and two with hypo-hyperparathyroidism, to characterized the essential features of these disorders. Like tetany, which was present in 12 of the patients, epilepsy was a common symptom, occurring in 13, seven of whom had received anticonvulsants for two to eight years before hypocalcaemia was detected. Differentiation between primary and pseudohypoparathyroidism could not be made with certainty on clinical grounds but confident distinction could be made by measurement of endogenous *parathyroid* *hormone* concentrations and by testing for renal resistance to exogenous *parathyroid* *hormone*. This was achieved by measurement of the plasma and, in some patients, the urinary cyclic AMP response to an intravenous injection of highly *purified* bovine *parathyroid* *hormone*. These investigations were also valuable in the assessment of the other three hypocalcaemic patients in whom a diagnosis of parathyroid dysfunction would otherwise have been made. In 10 of the patients synthetic 1 alpha-hydroxylated forms of vitamin D were used to establish and maintain normocalcaemia, though their use required careful monitoring.

5/3,AB/44
DIALOG(R)File 155:MEDLINE(R)

03694774 79071774
Autoantibodies to *parathyroid* *hormone* receptor.
Juppner H; Bialasiewicz AA; Hesch RD
Lancet (ENGLAND) Dec 9 *1978*, 2 (8102) p1222-4, ISSN 0023-7507 Journal Code: L0S
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Autoantibodies which block the binding of *parathyroid* *hormone* to membrane receptors for the hormone were detected in the sera (especially in the IgG fraction) of 49 out of 50 uraemic patients with secondary hyperparathyroidism (patients with high levels of C-regional *parathyroid* *hormone*). These antibodies are species-specific. Their presence in the serum in unaffected by dialysis. Inhibition of binding appears to be related to the rise in C-regional *parathyroid*-*hormone* levels and the duration of uraemia. The production of cyclic adenosine monophosphate by *parathyroid*-*hormone* -stimulated adenyl cyclase was reduced by the blocking antibodies. The findings show that secondary hyperparathyrodism in uraemia is another example of a receptor-antibody disease, but it is not known whether the antibodies act by modifying the affinity of the receptors for the hormone or by reducing the concentration of receptors available.

5/3,AB/45
DIALOG(R)File 155:MEDLINE(R)

03662333 79039333
Pathogenesis of hypercalcemia in lymphosarcoma cell leukemia. Role of an osteoclast activating factor-like substance and a mechanism of action for glucocorticoid therapy.
Mundy GR; Rick ME; Turcotte R; Kowalski MA
Am J Med (UNITED STATES) Oct *1978*, 65 (4) p600-6, ISSN 0002-9343 Journal Code: 3JU
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The pathogenesis of hypercalcemia and mode of action of glucocorticoid therapy was examined in a patient with lymphosarcoma cell leukemia. Circulating neoplastic cells were cultured in vitro and secreted a bone-resorbing factor. The bone-resorbing factor was partially *purified* with the use of a bioassay for bone resorption, and was found to be chromatographically and pharmacologically similar to osteoclast activiating factor (OAF), which is produced by normal mitogen-activated peripheral blood lymphocytes. Other factors which stimulate bone resorption, such as *parathyroid* *hormone*, prostaglandins and the vitamin D metabolites, were excluded by criteria which included dose-response curves, radioimmunoassays, extraction in organic solvents and failure of glucocorticoids to inhibit bone-resorbing

activity. The patient's hypercalcemia responded rapidly to prednisone therapy. The effects of the bone-resorbing factor secreted by the neoplastic cells on bone cultures to which cortisol was added were examined. Cortisol inhibited bone resorption directly at low doses (10(-8) M), which suggests that prednisone may have lowered the serum calcium in this patient by direct inhibition of bone resorption.

5/3,AB/46
DIALOG(R)File 155:MEDLINE(R)

03609928 78243928
Purification of *human* *parathyroid* *hormone*: recent studies and further observations.
Keutmann HT; Hendy GN; Boehnert M; O'Riordan JL; Potts JT Jr J Endocrinol (ENGLAND) Jul *1978*, 78 (1) p49-58, ISSN 0022-0795 Journal Code: I1J
Languages: ENGLISH
Document type: JOURNAL ARTICLE
During the isolation of *human* *parathyroid* *hormone* there is an extensive loss of immuno-assayble hormone over the successive extraction steps, due in part to the presence of fragments that are soluble in 4% trichloroacetic acid. These fragments are derived from both the amino- and carboxyl-terminal regions of the hormone. The hormonal fractions precipitated with trichloroacetic acid were further *purified* by gel filtration and ion-exchange chromatography. At the final ion-exchange *purification* step, some preparations of the hormone eluted in multiple fractions. When the various components were characterized separately by immunoassay, amino acid composition, enzymic cleavage and partial sequence analysis, they were found to be closely comparable, although the most acidic fraction contained a blocked terminal amino group. Extraction of a number of batches of tissue permitted revision of the amino acid composition of *human* *parathyroid* *hormone*. Biosynthetic studies with labelled amino acids confirmed the absence of tyrosine and the presence of phenylalanine and threonine and localized these residues to definite regions of the molecule.

5/3,AB/47
DIALOG(R)File 155:MEDLINE(R)

03554720 78188720
Isolation of a bone-resorptive factor from *human* cancer ascites fluid. Nimberg RB; Humphries DE; Lloyd WS; Badger AM; Cooperband SR; Wells H; Schmid K
Cancer Res (UNITED STATES) Jul *1978*, 38 (7) p1983-9, ISSN 0008-5472 Journal Code: CNF
Languages: ENGLISH
Document type: JOURNAL ARTICLE
A protein fraction that induces the resorption of bone explants in organ culture was isolated from the ascitic fluid of patients with advanced cancer metastatic to the peritoneal cavity. Partial *purification* was achieved by means of gel filtration, affinity chromatography, and ion-exchange chromatography. The isolated fraction, the components of which have an apparent molecular weight of 60,000, was found to be heterogeneous by disc gel electrophoresis and to be composed primarily of proteins with relatively acidic electrophoretic properties. The specific bone-resorptive activity of this protein fraction was greatly increased over that of the unfractionated starting material, and the activity could be completely destroyed upon incubation with pronase and on heating. As determined by immunoassay and extraction procedures with various solvents, the bone-resorptive action of the isolated fraction was not attributable to the presence of *parathyroid* *hormone* , prostaglandin E2 or vitamin D-like sterols. In parallel experiments the supernatants of phytohemagglutinin-stimulated normal *human* peripheral leukocytes were subjected to identical chromatographic techniques, and a proten fraction with a molecular weight of 60,000, which resembled the resorptive fraction isolated from cancer ascites fluid and which contained significant bone-resorptive activity, was also partially *purified*.

5/3,AB/48
DIALOG(R)File 155:MEDLINE(R)

03413272 78047272
Immunological studies on *parathyroid* *hormone*: characterization of antisera against synthetic 1-34 *human* *parathyroid* *hormone* and evidence that position 30 in *human* *parathyroid* *hormone* is aspartic acid.
Visser TJ; Buurman CJ; Birkenhager JC
J Endocrinol (ENGLAND) Sep *1977*, 74 (3) p461-6, ISSN 0022-0795 Journal Code: I1J
Languages: ENGLISH

Document type: JOURNAL ARTICLE
Radioimmunoassays for the measurement of the 1--34 *human* *parathyroid* *hormone* fragment (1--34 hPTH) were developed using antisera raised in rabbits against synthetic 1--34 hPTH-N (amino acid sequence proposed by Niall). Binding of 125I-labelled 1--34 hPTH-N to these antisera was optimal at pH 5-5. Limits of detection varied between 25 and 200 pg/ml. Cross-reactivity of 1--34 bovine PTH was substantial in all assays; 1--34 hPTH-B (structure proposed by Brewer), 1--84 hPTH and 1--29 hPTH cross-reacted only with antisera from one animal. 1--29 *Human* PTH was obtained from partial hydrolysis of both 1--84 hPTH and 1--34 hPTH-N. Production of 1--29 hPTH from 1--84 hPTH was demonstrated by comparison of the elution profiles of the reaction product and 1--29 bovine PTH on Sephadex G-50. Thus, evidence was obtained that position 30 in native hPTH is occupied by an aspartic acid residue.

5/3,AB/49
DIALOG(R)File 155:MEDLINE(R)

03412195 78046195
Synthesis of *parathyroid* *hormone*-like peptides by a *human* squamous cell carcinoma.
Hamilton JW; Hartman CR; McGregor DH; Cohn DV
J Clin Endocrinol Metab (UNITED STATES) Nov *1977*, 45 (5) p1023-30, ISSN 0021-972X Journal Code: HRB
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/50
DIALOG(R)File 155:MEDLINE(R)

03388842 78022842
Radioimmunoassay of *parathyroid* *hormone* (parathyrin) in monkey and man.
Hargis GK; Williams GA; Reynolds WA; Kawahara W; Jackson B; Bowser EN; Pitkin RM
Clin Chem (UNITED STATES) Nov *1977*, 23 (11) p1989-94, ISSN 0009-9147 Journal Code: DBZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
A radioimmunoassay for rhesus monkey and *human* immunoreactive parathyrin was developed in which a selected anti-bovine parathyrin antiserum, radioiodinated *purified* bovine parathyrin tracer, and *human* parathyroid tissue-culture media standards were used. The resulting data indicate that (a) the method is sensitive, specific, accurate and reproducible; (b) it is valid for both the rhesus monkey and the *human*; (c) the serum immunoreactive parathyrin concentration of the monkey is essentially the same as that in man; (d) monkey immunoreactive parathyrin responds to changes in serum calcium concentration similarly to that in man; and (e) the rhesus monkey is therefore a suitable species in which to study parathyroid physiology, from which conclusions can be applied to the *human*.

5/3,AB/51
DIALOG(R)File 155:MEDLINE(R)

03280133 77182133
Edman degradation of radioiodinated *parathyroid* *hormone*: application to sequence analysis and hormone metabolism in vivo.
Segre GV; Niall HD; Sauer RT; Potts JT Jr
Biochemistry (UNITED STATES) May 31 *1977*, 16 (11) p2417-27, ISSN 0006-2960 Journal Code: A0G
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/52
DIALOG(R)File 155:MEDLINE(R)

03209913 77111913
Improved method for determining *parathyroid* *hormone* in biological material.
Kenny AD; Ahearn DJ; Maher JF

Biochem Med (UNITED STATES) Dec *1976*, 16 (3) p201-10, ISSN 0006-2944 Journal Code: 9YW
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/53
DIALOG(R)File 155:MEDLINE(R)

03053606 76234606
Reversible resistance to the renal action of *parathyroid* *hormone* in man.
Tomlinson S; Hendy GN; Pemberton DM; O'Riordan JL
Clin Sci Mol Med (ENGLAND) Jul *1976*, 51 (1) p59-69, ISSN 0301-0538 Journal Code: DJM
Languages: ENGLISH
Document type: JOURNAL ARTICLE
1. Normal subjects showed a highly reproducible, rapid increase in plasma adenosine 3':5'-cyclic monophosphate (cyclic AMP) after an intravenous injection of 200 MRC units of highly *purified* bovine *parathyroid* *hormone* . 2. No significant increase in plasma cyclic AMP was observed after administration of bovine *parathyroid* *hormone* to patients with severe chronic renal failure. 3. Even when renal function was not impaired, some patients with primary hyperparathyroidism, who had high concentrations of endogenous *parathyroid* *hormone*, showed resistance to bovine *parathyroid* *hormone* and when this was injected intravenously it caused only a small increase in plasma cyclic AMP. This resistance was reversible since there was marked improvement in the response after parathyroidectomy, when endogenous *parathyroid* *hormone* concentration had fallen. 4. It was possible to reproduce this resistance to the hormone by intravenous infusion of bovine *parathyroid* *hormone* into normal subjects. When the hormone (1000 MRC units) was infused over 2 h, after an initial increase there was a progressive decline in plasma cyclic AMP concentration and a fall in urinary cyclic AMP excretion. The response to a standard test stimulus (200 MRC units of bovine *parathyroid* *hormone* given as a rapid intravenous injection) was examined at intervals after 1000 units of bovine *parathyroid* *hormone* had been infused. Initially, the response was severely impaired; at 4 h, partial recovery had occurred and, 24 h after the infusion, recovery of the response was complete. The resistance was therefore reversible. Infusion of the amino-terminal peptide, fragment 1-34, gave the same effect as infusion of intact hormone. Region-specific assays for the hormone were used to show that the concentration of immuno-assayable hormone remained high during the infusions. 5. The mechanism of this reversible resistance to *parathyroid* *hormone* remains to be elucidated; it seems unlikely that circulating hormone fragments could account for the prolonged impairment in the responsiveness to the intact hormone. It is possible that alteration in the formation, intracellular degradation or, perhaps, release of cyclic AMP from the cells, is the cause. Changes in the characteristics of the hormone receptor sites might also explain the phenomenon.

5/3,AB/54
DIALOG(R)File 155:MEDLINE(R)

03028998 76209998
Hormonal control of bone collagen synthesis in vitro: effects of *parathyroid* *hormone* and calcitonin.
Dietrich JW; Canalis EM; Maina DM; Raisz LG
Endocrinology (UNITED STATES) Apr *1976*, 98 (4) p943-9, ISSN 0013-7227 Journal Code: EGZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The effects of *parathyroid* *hormone* (PTH) on bone collagen synthesis were assessed in organ cultures of fetal rat calvaria by measuring the incorporation of [3H]proline into collagenase-digestible (CDP) and non-collagen protein (NCP) using *purified* bacterial collagenase. 1) PTH decreased the incorporation of labeled proline into CDP at concentrations similar to those which stimulate bone resorption in vitro. 2) This effect was observed in bones treated for 6 h, but not for 3 h; it was maximal at 24 h and was maintained for 96 h. Bones treated with PTH for 48 h and transferred to control media for 48 h showed recovery of CDP labeling to control values. 3) the effect was specific for bone collagen. There was little alteration in the incorporation of proline into NCP, and incorporation into collagen was not inhibited. 4) The effect could be ascribed to decreased collagen synthesis and not to changes in amino acid uptake, precursor pool size, or degradation of newly synthesized CDP. In 3 hour experiments, PTH did increase the labeling of CDP and NCP, but only at tracer concentration of proline in the medium, compatible with an early stimulation of amino acid uptake. 5) Similar inhibition was observed with *purified* bovine (1-84) PTH and synthetic bovine PTH (1-34) as well as with crude homologous PTH obtained from rat parathyroid gland culture fluid. *Human* (hCT) and salmon (sCT) calcitonin did not inhibit the effect of PTH on the labeling of CDP nor did they stimulate CDP labeling directly at concentrations which inhibited bone resorption. Dibutyryl cyclic-3',5'-adenosine monophosphate (D3cAMP) inhibited labeling of CDP at concentrations of .03 to .3 mM, thus mimicking the action of PTH. However, in this system DBcAMP inhibited 45Ca release, thus mimicking CT. We conclude that the direct

effect of PTH on bone collagen synthesis is a slow reversible inhibition, not opposed by CT. This effect may be mediated by cAMP formation in bone cells.

5/3,AB/55
DIALOG(R)File 155:MEDLINE(R)

02984152 76165152
Immunological comparisons of two synthetic *human* *parathyroid* *hormone*-(1-34) peptides.
Segre GV; Potts JT Jr
Endocrinology (UNITED STATES) May *1976*, 98 (5) p1294-301, ISSN 0013-7227 Journal Code: EGZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The immunological properties of *human* *parathyroid* *hormone*-)1-34) synthesized in accord with the sequence reported by Brewer et al. and the different sequence found by Niall et al. were compared with those of highly *purified* native *human* hormone-)1-84). Analyses were performed by radioimmunoassay using 7 anti-bovine *parathyroid* *hormone* antisera and bovine *parathyroid* *hormone*-)1-34) as tracer. Whereas *human* *parathyroid* *hormone* -(1-34) synthesized in accord with the sequence of Niall et al. was immunologically indistinguishable from native *human* hormone in all 7 assay systems, striking differences were seen between *human* *parathyroid* *hormone* -(1-34) synthesized in accord with the sequence of Brewer et al. and the native hormone. In none of the 7 assay systems did *human* *parathyroid* *hormone*-(1-34) synthesized in accord with the sequence of Brewer et al. give the same displacement slopes that the reference preparation gave. The observation that immunologic probes easily discriminate between the two different *human* *parathyroid* *hormone*-(1-34) peptides suggests that similar immunologic approaches will be of value in exploring several important issues, particularly those relating to the sequence and conformational properties of *human* *parathyroid* *hormone* and its synthetic peptides and to the question of the existence of isohormonal forms.

5/3,AB/56
DIALOG(R)File 155:MEDLINE(R)

02944215 76125215
On the lipolytic action of *parathyroid* *hormone* in man. Sinha TK; Thajchayapong P; Queener SF; Allen DO; Bell NH
Metabolism (UNITED STATES) Mar *1976*, 25 (3) p251-60, ISSN 0026-0495 Journal Code: MUM
Languages: ENGLISH
Document type: JOURNAL ARTICLE
An investigation was carried out to determine whether bovine PTH stimulates lipolysis in *human* fat tissue, whether this action is mediated by cyclic adenosine 3', 5'-monophosphate and whether the N-terminal 1-34 peptide of bovine PTH is responsible for the lipolytic effect. Studies were also performed to determine if parathyroid extract (PTE) produces lipolysis in normal subjects and in patients with pseudohypoparathyroidism in whom there is a defect in the adenylate system in response to PTH in the renal cortex and presumably in the skeletal system as well. It was found that highly *purified* bovine PTH in the concentration range between 10(-9) M and 10(-5) M stimulated lipolysis in vitro by *human* fat in a dose-dependent manner. Significant increases in glycerol production were observed at concentrations of PTH as low as 10(-9) M and maximal increases were seen at 10(-6) M. The hormone significantly increased the concentration of cyclic adenosine 3' ,5'-monophosphate in fat tissue. The synthetic N-terminal 1-34 peptide of bovine PTH was as effective as the native hormone in stimulating glycerol production at a concentration of 10(-9) M-10(-6) M. PTE, 100 mU per kg per min for 30 min given intravenously, produced transient increases in the concentration of plasma free fatty acid in each of eight normal subjects, three patients with hypoparathyroidism and eight patients with pseudohypoparathyroidism. *Purified* bovine PTH also increased plasma free fatty acid in each of two normal subjects. It is concluded that PTH stimulates lipolysis in *human* subcutaneous fat, that this action of the hormone is mediated through cyclic adenosine 3', 5'-monophosphate and that the N-terminal 1-34 peptide portion of the hormone is responsible for this lipolytic action. Further, PTE stimulates lipolysis in vivo in man. There appears to be no defect in the adenylate cyclase system in the fat cell in response to PTH in patients with pseudohypoparathyroidism.

5/3,AB/57
DIALOG(R)File 155:MEDLINE(R)

02939816 76120816
Renal adenylate cyclase and the interrelationship between *parathyroid* *hormone* and vitamin D in the regulation of

urinary phosphate and adenosine cyclic 3',5'-monophosphate excretion.
Forte LR; Nickols GA; Anast CS
J Clin Invest (UNITED STATES) Mar *1976*, 57 (3) p559-68, ISSN 0021-9738 Journal Code: HS7
Languages: ENGLISH
Document type: JOURNAL ARTICLE
This study examined the role of cyclic AMP in the phosphaturic response to *parathyroid* *hormone* in vitamin D-deficient rats. Infusion of *purified* bovine *parathyroid* *hormone* (13.3 mug/h) into control, D-fed, or D-deficient, thyroparathyroidectomized rats produced a sixfold increase in renal phosphate and cyclic AMP excretion in D-fed rats, but only a two- to threefold increase in both parameters in D-deficient animals. Intravenous injection of *parathyroid* *hormone* over the dosage range from 1-50 mug/kg resulted in a dose-dependent increase in phosphate and cyclic AMP excretion with both D-fed and D-deficient thyroparathyroidectomized rats. However, the D-deficient rats responded to these injections of *parathyroid* *hormone* with a two- to threefold increase in both renal phosphate and cyclic AMP excretion at the highest dose of 50 mug/kg, whereas the D-fed animals' response was 35-fold and 11-fold over control excretion levels of phosphate and cyclic AMP, respectively. To directly examine the role of the renal cortical adenylate cyclase system in the blunted phosphaturic and urinary cyclic AMP responses to *parathyroid* *hormone* in D-deficient rats, we prepared a plasma membrane fraction enriched in this enzyme activity from the renal cortex of D-fed and D-deficient thyroparathyroidectomized rats. The renal cortical adenylate cyclase of D-deficient rats showed significantly (P less than 0.001) less activation by *parathyroid* *hormone* over the hormone concentration range from 0.3 to 7.0 mug/ml than was observed with the enzyme prepared from D-fed animals. Basal adenylate cyclase activity and the fluoride-stimulated enzyme activity were not altered by the state of D-deficiency. These experiments demonstrate that the blunted phosphaturic response to *parathyroid* *hormone* observed in D-deficient rats is associated with the reduced responsiveness of the renal cortical adenylate cyclase to the hormone. Moreover, the defect in the renal membrane adenylate cyclase system appears to be localized at the level of PTH binding to membrane receptors or, alternatively, at the level of transmission of the hormone-receptor binding signal to the catalytic moiety of this membrane enzyme.

5/3,AB/58
DIALOG(R)File 155:MEDLINE(R)

02918257 76099257
A simplified assessment of response to *parathyroid* *hormone* in hypoparathyroid patients.
Tomlinson S; Hendy GN; O'Riordan JH
Lancet (ENGLAND) Jan 10 *1976*, 1 (7950) p62-4, ISSN 0023-7507 Journal Code: L0S
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Hightly *purified* bovine *parathyroid* *hormone* (B.P.T.H) was given by injection and/or infusion to six normal volunteers and to patients with surgical hypoparathyroidism (five cases), idiopathic hyparathyroidism (five cases), or poeudo-hypoparathyroidism (six cases). Infusion and injection of B.P.T.H. produced very similar patterns of response in plasma adenosine 3' 5' cyclic monophosphate (cyclic A.M.P.) In all six normal volunteers and in the patients with surgical (five cases) or idiopathic (four cases) hypoparathyroidism who had injections of B.P.T.H., plasma-cA.M.P. had risen significantly within 5 min and the peak response was genereally observed 10 min after injection of hormone. In the five pseudohypoparathyroid patients who received injections of B.P.T.H., plasma-c?A.M.P. concentration increased only slightly or not at all after the hormone was administered. Unlike the traditional test for the investigation of hypocalcaemia, the test described here does not require collections of urine samples.

5/3,AB/59
DIALOG(R)File 155:MEDLINE(R)

02837954 76018954
Porcine proparathyroid hormone. Identification, biosynthesis, and partial amino acid sequence.
Chu LK; Huang WY; Littledike ET; Hamilton JW; Cohn DV
Biochemistry (UNITED STATES) Aug 12 *1975*, 14 (16) p3631-5, ISSN 0006-2960 Journal Code: A0G
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Porcine parathyroid gland slices were incubated with 3H-labeled amino acids in order to label tissue proteins. After incubation a crude hormonal extract was prepared and analyzed by chromatography on carboxymethylcellulose. Among the three radioactive peaks which were detected in the eluate, two were identified as *parathyroid* *hormone* and proparathyroid hormone. Based on thin layer gel filtration in the presence of 6 M guanidine-HCl, the proparathyroid hormone had a molecular weight of 11,500 compared to about 9600 for *parathyroid* *hormone*. Radioisotope sequence analysis of the proparathyroid hormone revealed a partial sequence of:

Lys1-Pro2-Ile3-Lys4-Lys5-Arg6-Ser7-Val8-Ser9--Ile11--Met14--Gly18--Ser2 2--Ser23---. Thus, from position 7 onward the relative position of each amino acid tested in this molecule corresponded exactly to that in the porcine *parathyroid* *hormone* sequence. The conservation of a similar, though not identical, basic hexapeptide grouping Lys-X-Y-Lys-Lys-Arg- at the amino terminal region of the prohormone in all species examined thus far (porcine, *human* , and bovine) suggests that this segment of the molecule may play an important role in the conversion of the prohormone to the hormone.

5/3,AB/60
DIALOG(R)File 155:MEDLINE(R)

02817646 75224646
Immunoassay of serum polypeptide hormones by using 125I-labelled anti(-immunoglobulin G) antibodies.
Beck P; Nicholas H
Biochem J (ENGLAND) Mar *1975*, 145 (3) p607-16, ISSN 0006-2936 Journal Code: 9YO
Languages: ENGLISH
Document type: JOURNAL ARTICLE
1. A technique for indirectly labelling antibodies to polypeptide hormones, by combining them with radioactively labelled anti-(immunoglobulin G) is described. (a) 125I-labelled anti-(rabbit immunoglobulin G) and anti-(guinea-pig immunoglobulin G) antibodies with high specific radioactivity were prepared after *purification* of the antibodies on immunoadsorbents containing the respective antigens. (b) Rabbit immunoglobulin G antibodies to *human* growth hormone, porcine glucagon and guinea-pig immunoglobulin G antibodies to bovine insulin and bovine *parathyroid* *hormone* were combined with immunoadsorbents containing the respective polypeptide hormone antigen. (c) The immunoglobulin G antibodies to the polypeptide hormones were reacted with 125-I-labelled anti-(immunoglobulin G) antibodies directed against the appropriate species of immunoglobulin G,and the anti-hormone antibodies were combined with the hormone-containing immunoadsorbent. (d) 125I-labelled anti-(immunoglobulin G) antibodies and anti-hormone antibodies were simultaneously eluted from the hormone-containing immunoadsorbent by dilute HCl, pH 2.0. After elution the anti-(immunoglobulin G) antibodies and antihormone antibodies were allowed to recombine at pH 8.0 and 4 degrees C. 2. The resultant immunoglobulin G-anti-immunoglobulin G complex was used in immunoradiometric (labelled antibody) and two-site assays of the respective polypeptide hormone. 3. By using these immunoassays, concentrations down to 90pg of *human* growth hormone/ml, 100 pg of bovine insulin/ml, 80 pg of bovine *parathyroid* *hormone*/ml and 150 pg of glucagon/ml were readily detected. Assays of *human* plasma for growth hormone and insulin by these methods showed good agreement with results obtained by using a directly 125I-labelled anti-hormone antibody in an immunoradiometric assay of *human* growth hormone or by radioimmunoassay of *human* insulin. 4. The method described allows immunoradiometric or two-site assays to be performed starting with as little as 450 ng of polypeptide hormone-antibody protein. An additional advantage of the method is that a single iodination of the readily available antibodies to immunoglobulin G allows the establishemnt of several polypeptide hormone assays

5/3,AB/61
DIALOG(R)File 155:MEDLINE(R)

02782517 75189517
Isolation of a unique peptide inhibitor of hormone-responsive adenylate cyclase.
Levey GS; Lehotay DC; Canterbury JM; Bricker LA; Meltz GJ J Biol Chem (UNITED STATES) Jul 25 *1975*, 250 (14) p5730-3, ISSN 0021-9258 Journal Code: HIV
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We have perfused isolated rat livers with hypocalcemic (4.4 mg 100 ml) Krebs-Ringer bicarbonate albumin buffer. After 15 min of perfusion, a substance appeared in the perfusate which decreased rat renal adenylate cyclase activation by *parathyroid* *hormone* (PTH). The material in the perfusate was *purified* greater than 50,000-fold by Bio-Gel P-10 chromatography. The *purified* antagonist decreased the activation of rat renal cortical adenylate cyclase by PTH, glucagon, and epinephrine 75 to 100%. Concentration response curves for each of the hormones indicated a noncompetitive interaction of the inhibitor with the hormone. The inhibition was not species-specific, as the activation of the *parathyroid* *hormone* -responsive adenylate cyclase in cat renal cortex was also abolished by the inhibitor from the perfused rat liver. The inhibitor is a peptide, Mr equal to similar to 1000, which is heat-stable, acid-stable, alkai-labile, and is destroyed by trypsin, leucine aminopeptidase, and elastase. It is not destroyed by phosphodiesterase, 5'-nucleotidase, alkaline phosphatase, neuraminidase, RNase, or phospholipase A. The inhibitor is not produced by isolated rat livers perfused with normocalcemic perfusion media. It is unclear whether the peptide is synthesized by the liver or whether it is a breakdown product of a larger peptide or protein in the liver. This is the first reported peptide inhibitor of adenylate cyclase.

5/3,AB/62
DIALOG(R)File 155:MEDLINE(R)

02748616 75155616
Development and application of sequence-specific radioimmunoassays for analysis of the metabolism of *parathyroid* *hormone*.
Segre GV; Tregear GW; Potts JT Jr
Methods Enzymol (UNITED STATES) *1975*, 37 Pt B p38-66, ISSN 0076-6879 Journal Code: MVA
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/63
DIALOG(R)File 155:MEDLINE(R)

02739516 75146516
A reinvestigation of the amino-terminal sequence of *human* *parathyroid* *hormone*.
Keutmann HT; Niall HD; O'Riordan JL; Potts JT Jr
Biochemistry (UNITED STATES) May 6 *1975*, 14 (9) p1842-7, ISSN 0006-2960 Journal Code: A0G
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The sequence of the amino-terminal portion of *human* *parathyroid* *hormone* , particularly the identity of residues 22, 28, and 30 (the subject of discrepancies in recent published reports), has been reexamined by two basic methods of structural analysis. A fresh lot of *human* *parathyroid* *hormone* isolated from pooled adenoma tissue was analyzed by Edman degradation with identification of critical residues by thin-layer chromatography and gas-liquid chromatography. In the second approach, -14C or tritiated amino acids were incorporated during biosynthesis of the *human* hormone in slices of parathyroid glands in vitro; the appropriate amino acid residues were then determined as the -14C or tritiated phenythiohydantoin derivatives of the amino acid after Edman degradation, or by peptide isolation after appropriate cleavage with endopeptidase, or both. The results confirm our previous findings that residue 22 is glutamic acid, residue 28 is leucine, and residue 30 is aspartic acid.

5/3,AB/64
DIALOG(R)File 155:MEDLINE(R)

02732614 75139614
Subcellular location of *human* *parathyroid* *hormone* immunoreactive peptides and preliminary evidence for a precursor to *human* PTH-1 (38545). Wong ET; Lindall AW
Proc Soc Exp Biol Med (UNITED STATES) Feb *1975*, 148 (2) p387-92, ISSN 0037-9727 Journal Code: PXZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/65
DIALOG(R)File 155:MEDLINE(R)

02718144 75125144
The diagnostic value of a radioimmunoassay for *parathyroid* *hormone* in *human* serum.
Almqvist S; Hjern B; Wasthed B
Acta Endocrinol (Copenh) (DENMARK) Mar *1975*, 78 (3) p493-509, ISSN 0001-5598 Journal Code: 0NC
Languages: ENGLISH
Document type: JOURNAL ARTICLE
A radioimmunoassay for the measurement of immunoreactive *parathyroid* *hormone* (PTH) in *human* serum is described. The assay is based on the ability of *human* *parathyroid* *hormone* (h-PTH) to compete with 125I-labelled bovine *parathyroid* *hormone* (b-PTH) for binding to a guinea-pig antiserum directed against b-PTH. The linear part of the standard curve was parallel with dose response curves for anti-b-PTH serum reacting with dilutions of sera from patients with primary hyperparathyroidism and from h-PTH *purified* from *human* parathyroid adenomas, indicating that levels of immunoreactive PTH could be expressed as b-PTH equivalents.The range in 62 healthy blood donors was 1.1-2.5 ng b-PTH Eg./ml. The reproducibility was satisfactory, and the sensitivity permitted the measurement of PTH concentrations

down to 0.8 ng b-PTH Eg./ml. No crossreaction with h-CT, h-STH or h-ACTH was observed. The clinical value of the assay has been considered in a number of patients with various disorders of calcium metabolism, diagnosed and treated conventionally. About 80 per cent of patients with primary hyperparathyroidism had elevated PTH levels on one or more occasions before surgery. In patients with chronic renal failure of other aetiology than primary hyperparathyroidism the levels were usually far higher. Patients with primary hyperparathyroidism and increased S-creatinine had higher PTH levels than those with normal S-creatinine. After parathyroidectomy all previously increased PTH levels became normal or low. High PTH concentrations were found in 3 patients with normocalcaemic hyperparathyroidism who at operation were shown to have parathyroid adenomas. However, in normocalcaemic patients there were also some falsely elevated PTH values which limit the diagnostic value of the assay in this group of patients. Low PTH values were observed in patients with hypercalcaemia due to malignant disorders, indicating that PTH determination may be of some value in the diagnosis of patients with hypercalcaemia of unknown origin.

5/3,AB/66
DIALOG(R)File 155:MEDLINE(R)

02652220 75059220
Solid-phase synthesis of the biologically active N-terminal 1 - 34 peptide of *human* *parathyroid* *hormone*.
Tregear GW; van Rietschoten J; Greene E; Niall HD; Keutmann HT; Parsons JA; O'Riordan JL; Potts JT Jr
Hoppe Seylers Z Physiol Chem (GERMANY, WEST) Apr *1974*, 355 (4) p415-21, ISSN 0018-4888 Journal Code: GB3
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/67
DIALOG(R)File 155:MEDLINE(R)

02650033 75057033
Measurement of *parathyroid* *hormone*.
Buckle R
Clin Endocrinol Metab (ENGLAND) Jul *1974*, 3 (2) p345-87, ISSN 0300-595X Journal Code: DCR
Languages: ENGLISH
Document type: JOURNAL ARTICLE; REVIEW

5/3,AB/68
DIALOG(R)File 155:MEDLINE(R)

02650024 75057024
The chemistry of *parathyroid* *hormone*.
Keutmann HT
Clin Endocrinol Metab (ENGLAND) Jul *1974*, 3 (2) p173-97, ISSN 0300-595X Journal Code: DCR
Languages: ENGLISH
Document type: JOURNAL ARTICLE; REVIEW

5/3,AB/69
DIALOG(R)File 155:MEDLINE(R)

02560969 74278969
Pathophysiological data obtained with a radioimmunoassay for *human* *parathyroid* *hormone*.
Bouillon R; Moor P de
Ann Endocrinol (Paris) (FRANCE) Nov-Dec *1973*, 34 (6) p657-68, ISSN 0003-4266 Journal Code: 54O
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/70

02184331 73163331
Isolation of *human* *parathyroid* *hormone* and determination of the amino-acid sequence of the amino-terminal part of the molecule. O'Riordan JL; Barling PM; Hendy GN; Keutmann HT; Jacobs JW; Sauer RT; Niall HD; Tregear G; Potts JT; Aurbach GD
Clin Sci (ENGLAND) Apr *1973*, 44 (4) p14P-15P, ISSN 0009-9287 Journal Code: DJK
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/76
DIALOG(R)File 155:MEDLINE(R)

02091429 73070429
Human *parathyroid* *hormone* : amino-acid sequence of the amino-terminal residues 1-34.
Brewer HB Jr; Fairwell T; Ronan R; Sizemore GW; Arnaud CD Proc Natl Acad Sci U S A (UNITED STATES) Dec *1972*, 69 (12) p3585-8, ISSN 0027-8424 Journal Code: PV3
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/77
DIALOG(R)File 155:MEDLINE(R)

02034035 73013035
Radioimmunoassay of *human*, porcine and bovine *parathyroid* *hormone*. O'Riordan JL; Woodhead JS
Horm Metab Res (GERMANY, WEST) *1971*, 3 pSuppl 3:108-12, ISSN 0018-5043 Journal Code: GBD
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/78
DIALOG(R)File 155:MEDLINE(R)

01833672 72083672
The chemistry of *parathyroid* *hormone* and the calcitonins. Potts JT Jr; Keutmann HT; Niall HD; Tregear GW
Vitam Horm (UNITED STATES) *1971*, 29 p41-93, ISSN 0083-6729 Journal Code: XFE
Languages: ENGLISH
Document type: JOURNAL ARTICLE; REVIEW

5/3,AB/79
DIALOG(R)File 155:MEDLINE(R)

01691360 71236360
Isolation of *human* *parathyroid* *hormone*.
O'Riordan JL; Potts JT; Aurbach GD
Endocrinology (UNITED STATES) Jul *1971*, 89 (1) p234-9, ISSN 0013-7227 Journal Code: EGZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/80
DIALOG(R)File 155:MEDLINE(R)

01643376 71188376
Parathyroid *hormone*: sequence, synthesis, immunoassay studies. Potts JT Jr; Murray TM; Peacock M; Niall HD; Tregear GW; Keutmann HT; Powell D; Deftos LJ

Am J Med (UNITED STATES) May *1971*, 50 (5) p639-49, ISSN 0002-9343 Journal Code: 3JU
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/81
DIALOG(R)File 155:MEDLINE(R)

01643375 71188375
Human *parathyroid* *hormone* : glandular and secreted molecular species.
Arnaud CD; Sizemore GW; Oldham SB; Fischer JA; Tsao HS; Littledike ET Am J Med (UNITED STATES) May *1971*, 50 (5) p630-8, ISSN 0002-9343 Journal Code: 3JU
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/82
DIALOG(R)File 155:MEDLINE(R)

01444987 70289987
Native *human* *parathyroid* *hormone*: an immunochemical investigation. Arnaud CD; Tsao HS; Oldham SB
Proc Natl Acad Sci U S A (UNITED STATES) Sep *1970*, 67 (1) p415-22, ISSN 0027-8424 Journal Code: PV3
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/83
DIALOG(R)File 155:MEDLINE(R)

01398919 70243919
A radioimmunoassay for *parathyroid* *hormone* in man. I. Development of a radioimmunoassay for bovine PTH.
Schopman W; Hackeng WH; Lequin RM
Acta Endocrinol (Copenh) (DENMARK) Apr *1970*, 63 (4) p643-54, Journal Code: 0NC
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/84
DIALOG(R)File 155:MEDLINE(R)

01333609 70178609
The isolation and immunological properties of porcine *parathyroid* *hormone*.
Woodhead JS; Stoltz M; O'Riordan JL
Clin Sci (ENGLAND) Mar *1970*, 38 (3) p17P-18P, ISSN 0009-9287 Journal Code: DJK
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/85
DIALOG(R)File 155:MEDLINE(R)

01215033 70060033
The isolation and assay of *human* *parathyroid* *hormone*. O'Riordan JL; Woodhead JS
Clin Sci (ENGLAND) Oct *1969*, 37 (2) p572, ISSN 0009-9287 Journal Code: DJK
Languages: ENGLISH
Document type: JOURNAL ARTICLE

5/3,AB/86
DIALOG(R)File 155:MEDLINE(R)

01197316 70042316
Immunological reactivity of *purified* *human* *parathyroid* *hormone*. O'Riordan JL; Aurbach GD; Potts JT Jr
Proc Natl Acad Sci U S A (UNITED STATES) Jul *1969*, 63 (3) p692-8, ISSN 0027-8424 Journal Code: PV3
Languages: ENGLISH
Document type: JOURNAL ARTICLE
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5/KWIC/80
DIALOG(R)File 155:(c) format only 1995 Knight-Ridder Info. All rts. reserv.
Parathyroid *hormone*: sequence, synthesis, immunoassay studies. May *1971*,
Tags: *Human*
...; Drug Effects--DE; Kidney Failure, Chronic--Blood--BL; Parathyroid Hormones--Analysis--AN; Parathyroid Hormones--Blood--BL; Parathyroid Hormones--Chemical Synthesis--CS; Parathyroid Hormones--Isolation and *Purification*--IP; Parathyroid Hormones--Pharmacology--PD; Parathyroid Neoplasms--Blood--BL; Radioimmunoassay; Time Factors
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